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The Trade Review.

A JOURNAL OF MANUFACTURES, COMMERCE, INDUSTRY, SCIENCE, ART AND INVENTION.

Vol. XIV.—No 24. CLEVELAND, JUNE 11, 1881. No. 697

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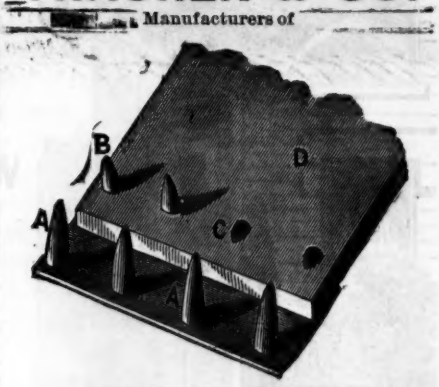

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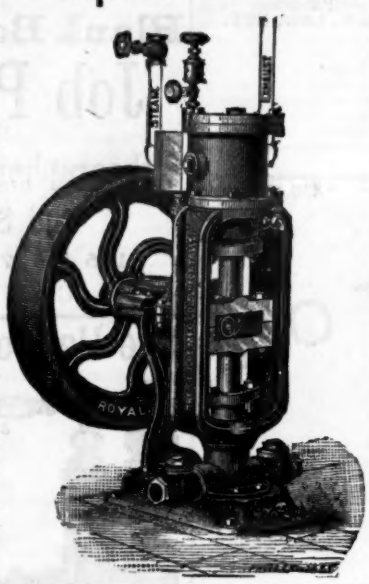

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No. 1	3 inch	1¾ inch	3 inch	¾ inch	¾ inch	1 inch	100	1.93	15 HP	$ 44 00
No. 2	3¼ inch	1¾ inch	3 inch	¾ inch	¾ inch	1 inch	100	3.12	27 HP	55 00
No. 3	4 inch	2¼ inch	4 inch	¾ inch	1 inch	1¼ inch	90	6.20	46 HP	66 00
No. 4	4½ inch	2¾ inch	4 inch	¾ inch	1 inch	1¾ inch	85	8.75	62 HP	82 50
No. 5	5 inch	3¼ inch	4 inch	¾ inch	1¼ inch	1¾ inch	80	13.33	106 HP	110 00
No. 6	6 inch	4 inch	5 inch	1 inch	1½ inch	3 inch	75	21.75	164 HP	154 00

With each Pump we furnish Throttle Valve, Oil Cup and Let Off Plugs.

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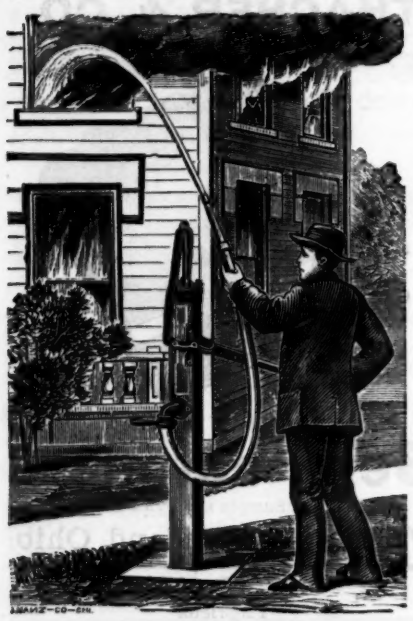

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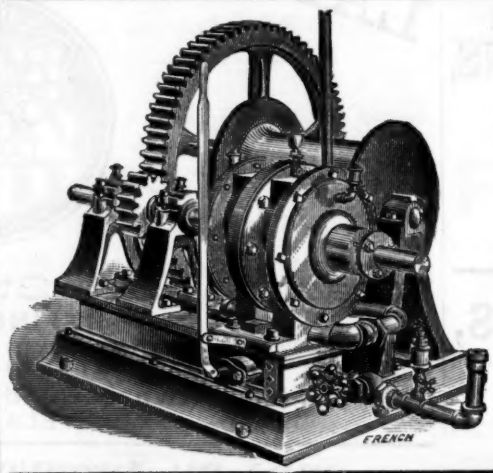

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THE TRADE REVIEW.

FOURTEENTH YEAR.

The only strictly Manufacturing, Industrial and Scientific Paper published in Ohio.

THIS JOURNAL IS APPOINTED THE OFFICIAL ORGAN OF THE OHIO INSTITUTE OF MINING ENGINEERS.

PUBLISHED EVERY SATURDAY

—BY—

THE REVIEW PUBLISHING COMPANY

CLEVELAND, OHIO.

Publication Office, 147 St. Clair street, cor. Ontario.

Subscription, (Postage included,) $3.00 per Year.

Entered at the Post Office at Cleveland as second-class matter.

ADVERTISING RATES.

One Inch, one time	$1.50
One Inch, three times	3.00
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IRON MANUFACTURE OF NORTHERN OHIO AND THE CLEVELAND IRON TRADE.

The moderate purchases of iron ore by Furnace men not engaged in Bessemer working, indicates that for prospective requirements they entertain hopes of an advance in manufactured iron, such as will enable them to secure a wider margin of profit in paying the prices demanded for ore. Advices from the Lake Superior mines indicate an output somewhat larger than last year, and it is estimated that four-fifths of the current season's product has been disposed of. Bessemer ores are almost wholly sold up. A good amount of non-Bessemer ores await sale. Purchasers for Lake Superior ore for the furnaces of the Mahoning Valley, will be restricted, by the Virginia ore now more freely mined, and which though not of equal richness is compensatory in the lower freight rates at which it can be delivered. Arrivals from Escanaba are looked for in the course of next week. Freight contracts have been entered into from Escanaba to Cleveland at $1.50 to $1.60 per ton. Freights to this port from Marquette, from which ore will probably be shipped towards the close of this month, are quoted at $2; the contracts made are for only a portion of the season. Last year at this season the average lake freight on iron ore from Marquette, including season charters aud single trip charters, was from $2.50 to $2.65 per 2,240 pounds. Lake Superior ores are firm at the following quotations:

No. 1 Specular, Bessemer quality	$9 00@10 00
No. 1 Magnetic, Bessemer quality	9 50@10 00
No. 1 Hematite, Bessemer quality	6 25@ 6 50
No. 1 Specular, mill ores	9 00@ 9 25
No. 1 Magnetic, mill ores	8 75@ 9 00
No. 1 Hematite, mill ores	6 00@ 6 50
Menominee Range ores	6 00@ 9 00

As to manufactured iron, the foundries of Northern Ohio are at this time extremely busy, and the orders on hand, not to speak of those in prospect, assure a long continuance of operations. The best grades are firm, and gray forge, of which there is but a moderate stock, rules steady at quoted rates. Prospective prices continue subject to diverse expressions of opinion; and values are to be regarded as irregular and unsettled. The future resolves itself into the question as to whether there will or will not be be an oversupply. At the present time it is certain, in market phraseology, that there are more sellers than buyers. On the one hand it is urged that there is no over production going on, seeing that although consumers are using up stocks, and not making heavy purchases, there is little if any accumulation of iron (a matter not easily determined) and further that the consumption continues to be enormous. On the other hand it is urged that furnace men confessedly find a difficulty in securing an outlet for their supplies, though, in their hopefulness for the future, they are by no means seeking to force the market. In July, when the semi-annual stock-taking takes place, the market is likely to assume a more decided tone. Influences operating against an advance, but so far not sufficiently strong to induce other decline than that represented in occasional individual concessions, are encountered in the new impulse that has been given to the importation of British iron, deliveries at New York having increased, and will be followed by larger importations; and in the considerable stocks on which Eastern bankers have held liens dating from the time of the boom, and now being pressed on the market. Stocks of bar iron are by no means heavy, demand is fair, and prices rule firm. Prompt delivery on orders given by dealers in bars to the mills are no longer looked for. The production of the mills fully equals that of any previous period. Sheet iron is in good demand, whether for galvanized or common singles or refined. Several important contracts have been entered on by Cleveland parties the past week. We quote: Common sheet No. 26 to 28 4¼ cents; best refined ¼ cent @ ½ cent advance. Best bloom sheets No. 26 to 28 rule at 6¾ cents. There is improved inquiry for structural iron, prices being in favor of buyers, who look for concessions in any large transactions. Quotations are as follows: 2.6c for Angles, 3c for Tees, 3.3c for Beams, and 3.4c for Channels. For steel rails prices show a weakening tendency; orders for prompt delivery are placed at $60, with reduction for delivery after August of from $4 to $5. There is little activity in scrap iron. We quote wrought at $26 for short up to $29 for choice selections, and cast at $19. The Cleveland price for Middleboro' iron is $18. In Scotch iron, Eglinton commands $22 and Gartsherrie $24. The following are the Cleveland rates of

CHARCOAL PIG IRON.

No. 1 Lake Superior Charcoal	$31 00 @ 32 00
No. 2 Lake Superior Charcoal	31 00 @ 33 00
No. 3 Lake Superior Charcoal	32 50 @ 34 50
No. 4 Lake Superior Charcoal	33 00 @ 34 50
Nos. 5 and 6 Lake Superior Charcoal	31 00 @ 33 00
Nos. 1, 2, 3, 4, 5 Salisbury	42 00 @ 45 00
Nos. 1, 2, 3, 4, 5 Tennessee cold blast	38 00 @ 40 00

BITUMINOUS AND COKE IRON.

No. 1 Foundry from Lake Superior ores	$25 00
No. 2 Foundry from Lake Superior ores	25 50
No. 1 Foundry from Lake Superior ores with cinder mixture	24 00
No. 2 Foundry from Lake Superior ores, with cinder mixture	23 00 @ 23 50
No. 1 Foundry from native Ohio ores	22 50
No. 2 Foundry from native Ohio ores	21 00 @ 22 50
No. 1 Silvery Foundry, native Ohio ores	22 00 @ 23 00
No. 2 Silvery Foundry, native Ohio ores	21 00 @ 22 00
No. 1 Gray Forge from Lake Superior ores	24 00
No. 1 Gray Forge, mixture of ores	20 50 @ 22 00
White and Mottled Forge Iron	19 00 @ 21 00

AMERICAN INSTITUTE OF MINING ENGINEERS

The address of the President of the American Institute of Mining Engineers in opening its first session at Staunton, Va., though mainly consisting of generalizations arising out of achieved accomplishments, was excellent in its way, delighting the audience with its lightsome and rapid survey of the field of mining engineering, and making excellent reading for those not present. It was a popular, unlabored address, such as few scientists could produce, burdened as they are apt to be by mere details. In referring to the objects with which mining engineers have to deal, he most happily designated them mass, motion and force, selecting "mass" as that which the mining engineer manages. His contrast of the ancient and modern machinist and melter was very vivid: "The old-fashioned machinist who could do everything with a hammer and chisel and a gearless foot lathe, from the fitting of a joint to the cutting of a screw thread, was a very skillful man, but he bore no comparison to the average machinist of to-day, who understands every machine in the shop, can read his drawings, make his own calculations for his work, and make things come together as they shonld. Nor did the old fashioned man ever dream of earning such wages as are paid willingly to-day. The old style steel melter who used coke holes and spent the whole day toiling over the fire or in the ash-pit, earned enormous wages and exhausted his energies; full of dirt, ashes and weariness, he went from his work to the grog shop, filled himself with beer and slept away his misery. The same man to-day, handling one of Dr. Siemen's beautiful gas furnaces, has had to turn his mind to the ingenious mechanism he is to manage; he works in a clean, light and pure atmosphere, gets a thorough sweating three times a day and a good rest between heats, and is on the average an upright, intelligent thrifty man." Although all this is in prose, it is emphatically the poetry of science. The past and the present are after all in some respects wedded. In the survey, the labors of the puddler could not be overlooked. Where mechanical aids have not come to his assistance, it is the most laborious labor known, and the "sweating" experienced is by no means to be identified with the luxury of a Turkish bath. "The puddler of to-day must toil at his rabble and worry at his fire for ten or eleven hours a day; his work is hot, dirty and exhausting, and he is about the most troublesome factor in the iron business, and no one can wonder at this who takes the trouble to watch his operations." All will agree with the President in his expression of the hope that mechanical puddling will receive that attention which it deserves. "Whatever the extent to which steel is adopted," he remarked, "wrought iron must continue to be needed." As to preliminary preparation for the work of a mining engineer, the President's conviction was decidedly in favor of mathematics, carried through all of the higher branches, even though it should seem too much for the brain, as in the case of the student who being called upon for a solution of the familiar problem in calculus known as the bee's cell, told his professor that he had worked at it all night and had only succeeded in making a hornet's nest of his head. The members of the American Institute of Mining Engineers are evidently "jolly good fellows" to judge by the spirit pervading their semi-social-scientific gatherings. They generally vote to have a good time, and at their last meeting, to prevent any hostile conflict that would mar the joyous occasion, decided with acclamation that they had "no opinions." There are no more practical men in the world than our mining engineers. The work they do is of the first importance in developing the riches of the earth. We live in a metallic and stone age, and all operations in delving for subterranean treasures are carried on by scientific processes The experience gathered from year to year, and which through the interchange of ideas gradually becomes common property, tends to make results more certain; the mechanical engineer, the mineralogist and the chemist contributing aid in their several spheres.

FINANCE.

One of the great African lakes is stated to have exhibited the phenomenon of continually rising for months in spite of large outflow and its numerous effluents. The analogy is to be found in the position of the money market. With all the enterprises undertaken and the activity of manufactures and trade, there is a vast and unprecedented surplus. The banks are holding money far in excess of legal requirements, and deposits

almost equal the expansion of loans. The loans of the New York banks approximate $345,000,000 but, after all, the amount is only $21,000,000 greater than before January. To account for present deposits it has been groundlessly affirmed that speculators are locking up their money. One potent cause of the swelling of our available funds is in the large purchases being made of American securities on foreign account, stocks and bonds being taken with eagerness. A further accession to the available stock of money is to be looked for in the Treasury payments on account of the quarter's interest on $300,000,000 of five per cent bonds, and the redemption of $16,000,000 of six per cents on the first of next month. The *N. Y. Tribune* points out that a large portion of the disbursements government will make in July and the six following months has to be collected in customs and revenue dues. After that date the Treasury will not contribute any important amount. On the whole we are not disposed to regard either the present or prospective position of the money market as indicative of any such inflation as should excite uneasiness. The present abundance of money, the freedom with which it is being loaned at a low rate of interest, is referable to the prosperity of the country.

AMERICAN TRADE IN FOREIGN COUNTRIES.

Proceeding with our review of the lately issued Consular Reports on American trade abroad, we touch first on the communication of Consul M'Lain at Nassau in the Bahamas, who observes that there is room there for an increase of our hardware business, of which we have already secured a "respectable share." "We supply," he says, "most of the cast-iron door-locks, because they are lighter and better adapted for inside doors. English wrought iron locks are taken for outside purposes. American hatchets, axes and adzes are preferred. Kerosene lamp goods naturally come hand in hand with our petroleum; and cast-iron kitchen stoves, grindstones, porcelain and mineral knobs, cut nails, tacks, casters, wooden ware, and all that host of small and cheap articles peculiarly of American manufacture, control the market here." Where we fall off is in wrought iron goods, window bolts, hinges, cutlery, saddlery hardware, and strange to say, enameled pitcher ware. Our Consul calls special attention to the importance of cultivating the trade in cast-iron hollow ware, camp ovens, and charcoal stoves, a great many of these goods being sold, whilst England, which makes them lighter and cheaper, but has higher rates of freight to pay, has the entire business of supplying them. Consul Plumacher, of Maraccabo, South American, mourns over the falling off of arrivals of the fine schooners and brigantines of light tonnage that formerly arrived in considerable numbers from New York, carrying full cargoes and doing a fine business. He considers that American mercantile houses, instead of dealing exclusively in coffee, would do well to turn their attention to the other manifold resources of this country. The figures given by our Consul at Marseilles show that the lard and grease trade at that port is larger than that of salt pork proper, but also that the progress has been less in proportion for the former than for the latter We object to our Consul giving his returns in kilograms instead of pounds. The total imports at Marseilles of pork and pork products in 1880 amounted to 33,617,087 pounds, of which 27,970,475 pounds came from the United States. We shall yet do an enormous business in this line with France after the hog scare is over. Consul Brooks of Cork, writing generally on the means of enlarging American trade in Europe, says that the American export trade in articles of food, household furniture, kitchen accoutrements, agricultural implements and boots and shoes, may be increased to almost limitless bounds, by driving spurious articles out of the market and honestly improving the quality of genuine ones. We must differ with him as to the possibility of thus pushing abroad "manufactures of all kinds," in which he particularly specialises clothing, hats and caps, the very articles in which the cheap labor and abundant capital of Europe leaves us as to price all behind. This latter exhilarating expectation excites the suspicion that Consul Brooks has been getting some sanguine Irishman who knows nothing of our clothing manufacture to help him out with his report. There is some sound sense in the suggestion of Consul Wilson of Brussels, Belgium, to the same end. He holds that were greater economy in the raising of food products practised in this country, our trade in food products would be vastly increased. He dissipates the general illusion that food for all classes is cheap in Europe, points to the fact how every available field of arable land, nook, corner and roadside which will yield vegetation is utilised; and believes that if a tithe of the same economy was practised by our farmers, a larger surplus of varied produce could be profitably sent. We have but space to refer to the stave trade. Consul Jerrish, of Bordeaux, gives valuable information as to how we may drive a trade in staves. In the year 1880 15,717,356 staves, valued at $1,819,800, were imported from Adriatic ports, and only 150,000, valued at $26,000, came from the United States. The objection made against both our sawed and split staves that much more labor is required to prepare them for casks than those from the Adriatic. Besides they are not, as is required, of uniform length in the several classes. Some of them are merely cleft. We have succeeded in other articles in meeting closely local requirements, why not then do the same in staves for which there is an undoubted demand? We shall refer to additional reports in our next issue.

EDITORIAL NOTES.

THE drift of the grain trade to New Orleans is exciting wide attention. Toledo as well as Chicago and New York have arranged to establish agencies in St. Louis and New Orleans to serve this route. Grain has been purchased from Chicago merchants to be delivered in St. Louis during the summer months. New barges are in progress of construction for use on the Missouri and Upper Mississippi Rivers. The Anchor Line Steamship Company is preparing to take eight of its vessels out of the trade between Atlantic ports and Europe, and run them between New Orleans and Liverpool as regular packets. These facts demonstrate that capitalists are at last fully awake to the great advantage of the Mississippi and its tributaries as a natural highway of Western commerce. "The glory of a king is to conceal a thing" says Solomon, and we are far from surprised that Jay Gould who has so large an interest in the matter, should represent that the new route has not the competitive importance generally assigned to it; and that its main service will consist simply in supplying the place of lake navigation in the winter or early spring. The facts we have stated are against this view. Staves for export are passing down the same way in increasing quantities. The following are the precise remarks of Mr. Gould as lately expressed at Chicago. As we have indicated, we attach no importance to them: "The Mississippi River line is simply a winter route providing the same cheap outlet by water during the winter as the lakes afford during the summer. The lake routes are much more available during the summer than the barge lines, and would continue to get the bulk of the Western business. My principal object in establishing the barge lines is to stop the clamor of the Grangers for more competition, and thereby prevent the onerous and disastrous railroad legislation."

THE annual report of the Superintendent of the Ohio Insurance Department shows that the total receipts since its organization in 1872 have amounted to $204,114; the expenditures to $80,914, leaving a balance of $123,203. This exhibit is most creditable to Mr. Joseph J. Wright. An efficient department, it is also economically managed. Ten Ohio companies have had an excess of income over expenditures, and sixteen had an excess of expenditures over income—nevertheless the condition of these companies, in consequence of an appreciation in the value of their securities, is better than it was the previous year. Of the companies of other States, sixty-seven have had an excess of income over expenditures, and thirty-seven have had an excess of expenditures over income. Each of the twenty foreign companies has an excess of income over expenditures. The aggregate risks written in Ohio (including life) amounted in round numbers to four hundred million dollars, or about one-fourth the taxable property of the state, which is $1,558,215,965. The assets of the companies, by which this enormous volume of business was done, aggregate nearly six hundred million dollars. There were paid by the citizens of Ohio in premiums for fire policies, three million five hundred thousand dollars; and for life and casuality, three million dollars, being six and a half millions for insurance. Twenty fire insurance companies have been licensed to do business in Ohio the past year, and forty-four companies have withdrawn in the same time their operations from this State.

WE are glad to find the City Council giving some attention to the Cleveland Breakwater. On Saturday last it passed a resolution directing the Board of Improvements to confer with Colonel John M. Wilson, United States Engineer, and prominent ship owners as to the best plan for opening and extending the channel of the old river bed through into Lake Erie so that it will be available for purposes of navigation, and report to the Council their conclusions and also the probable cost of the city's part of the improvement, and what steps should be taken to provide the necessary funds for the purpose.

ATTENTION is properly drawn by the New York *National Car Builder* to the annoyance endured by railway passengers from the hawking of miscellaneous merchandise through the trains in the form of flash literature, prize candy, peanuts and other abominations. It observes that the practice is tolerated simply because no general protest is made against it. It also remarks that another striking defect of our system is the exposed and accessible condition of the tracks at stations, allowing trains to be approached from all directions, and enabling people who are a little behind time to make a dash for the train after it is well under way.

Notwithstanding all contradictions, it is certain that there is a cutting of freight rates by the competing lines that run from Chicago to Eastern ports. Otherwise, how is it that the Erie road has been doing so much larger a business than the Central Railroad?

A PATENT has recently been issued to an Austrian inventor for grate bars fed from the rear end with a current of air from outside the brick work The air passing backwards toward the front of the grate half or two-thirds the length of the grate, thereby becomes heated, and passes upward through the sides of the grate into the flame.

MANUFACTURES.

TO MACHINISTS, MANUFACTURERS AND OTHERS.

THE publishers of THE TRADE REVIEW solicit items of information concerning manufacturing and other establishments in anv part of the country, and all such items will be promptly inserted in these columns, free of charge. Facts are the only things needed; and all communications should be accompanied with the name of the contributor—not for publication—but as a guarantee of good faith.

Manufacturers, machinist and engineers are particularly requested to communicate any matters of interest relating to their specialties. No one need be deterred from sending any interesting facts in his own language, as all such contributions will be properly revised before sendin to press.

OHIO.

THE Akron Cutlery Works are full of orders.

A CARRIAGE bolt manufactory and a woolen manufactory will shortly be started at Ashtabula.

A MOVEMENT is on foot among capitalists to erect in Cincinnati a mammoth watch works factory.

THE Globe Rolling Mill No. 2, Cincinnati, is about to engage largely in the manufacture of hoop iron.

THE works of Smith, Vaile & Co., Dayton, will start on the 15th inst. The works cover 50,000 square feet.

WARNER & SWASEY, Cleveland, are having constructed at Syracuse, New York, one of Professor Sweet's high pressure engines.

B. F. MERCER. Alliance, has enlarged his pump works nearly double,and thus far this year has sold beyond his entire product of last year.

A FACTORY is about starting at Portsmouth for the manufacture of flattened hoops for nail kegs. Rottinghaus & Hornung are to be the proprietors.

LAST week at the Buckeye Works there were made 480 complete Buckeye Machines and 150 Binders. That's business, insn't it?—*Akron Sunday Gazette.*

THE Canton Cutlery Company are manufacturing a very large line of pocket cutlery. Two hundred men are at work, and yet difficulty is had in filling orders.

UDALL & NILES, founders and machinists, Niles, report trade good. Their specialties are plow points and saw mills. They do general repairing and jobbing on short notice.

THE capital stock of the Mahoning Powder Co. is to be increased to $50,000. An effort is now being made to secure an eligible location for the mills.—*Youngstown Vindicator.*

WORK is going on to develop more of Niagara's water power, and three thousand horse power have lately been rendered available by the completion of a wheel-pit and tunnel for a new flour mill.

A whey sugar factory is being established at Aurora. The sugar is to be for medicinal purposes, and will be formed into tiny pellets Cleveland parties are at the back of the enterprise.

MOORE & BARLOW have just started a factory at East Liverpool, for making stilts, pins and spurs. A new engine has lately been placed in the factory, thirty ton pressure press and other machinery.

HALL'S Safe and Lock Company, Cincinnati, now employ more than six hundred workmen, and others are wanted. Orders for Hall's safes and locks were never so large and pressing as at the present time.

THE Andrews Mill, at Hazleton, has started and is at work. The buildings are large, the one which the train of rolls is located being 90x120 feet, and the puddle mill 90x225 feet. There are six double puddling furnaces.

WORK has been commenced on the large structure to be used by the Youngstown Carriage and Wagon Works. This, with the large building now used by Seifried & Lemley, which is a part of the establishment, will make it one of the most extensive in the State.

M. DEAL & Co., Bucyrus, manufacturers of the California Smutter and California Brush Finisher, and dealers in all kinds of millers' supplies, have been so successful with the former, that one of the partners has sailed for England to establish a branch manufactory in London.

THE Bolton Steel Company, Canton, are running their works night and day, with a force of about 175 hands. Some $10,000 per month is disbursed among their employes for wages.

MESSRS. Hickox & Co., Cleveland, have accepted the plans from E. P, Allis & Co., of Milwaukee, for their new 800-barrel roller mill, and are now busily at work on the building. This mill will contain about fifty roller machines, and is expected to be one of the finest in the country.

MR. WARD, of the Ward's Iron Works, Niles, in addition to taking to New Philadelphia the machinery of both his mills, will build a new mill double the capacity of both the mills now in operation in Niles. The mill, it is said, will be one of the largest in the country, employing about 1,300 hands.

MR. SAMUEL TRUSCOTT, who was the original inventor and patentee of the rubber paint, has commenced in company with others the manufacture of elastic paint, 36 Michigan avenue, Cleveland, under the name of Phœnix Paint Company. They make a paint especially adapted to house and steamboat work.

A. FISHER, 48 Merwin street, Cleveland, dealer in new and second hand machinery, has just shipped to Buffalo a very large engine. He reports a good deal of inquiry for second hand machiney. Messrs. L. Power & Co., of Philadelphia, manufacturers of wood-working machinery, have made him their agent for Ohio and the West.

HOUGHT & DAVIDSON, New Philadelphia, are filling extensive orders for a machine which dispenses with the method of driving in the axle boxes of carriages and wagons by means of sledges, substituting a screw which affords sufficient pressure to force the boxes into the wheel without the danger of bruising or breaking them, and fitting them much tighter.

THE Brooks Oil Company, Cleveland, manufacturers of mineral lubricating oils, having recently built a refinery for the purpose of manufacturing all grades of mineral lubricating Oils, announce that they are prepared to fill orders for every grade of machinery oil known to the trade, both dark and light. In regard to the quality of their different oils, they state that their purpose is to furnish good reliable oils at the lowest market price.

OTTO KONIGSLOW, 59 Michigan street, Cleveland, has just finished a machine upon which he has been at work since February, for manufacturing clothes pins out of steel wire. This is the second machine made for Mr. A. E. Francis, the inventor, and has many improvements over the first one, and is a wonderful piece of mechanism. It is calculated to make from 20,000 to 25,000 clothes pins per day. Mr. Konigslow has a happy faculty of developing the crude ideas of inventors, and producing very fine specimens of mechanism.

E. H. BROWNELL & Co., proprietors of the Dayton Steam Boiler Works, which were established in 1855 by Mr. E. H. Brownell, have this season shipped about seventy-five boilers to Minnesota and twenty-five to various points in North Carolina, Georgia and Alabama; among which were three large boilers for the Montgomery (Ala.) Water Works. They also have a large local trade in Ohio, Indiana, and Illinois. They do all kinds of boiler, tank and sheet iron work. Built over 400 boilers in 1880 and over 150 thus far in 1881.—*Chicago Indus. Worlk.*

MORGAN, WILLIAMS & Co., Alliance, are finishing for Oliver Bros. & Phillips, Pittsburgh, a shear that weighs sixty-eight tons and cuts one hundred inches at one stroke. They have an order for another of the same size for J. H. Shoenberger & Co. They are adding 100 feet to their building, and placing a new engine of sixty horse power.—*Ibid.*

THE Cleveland shops of the C. C. C. & I. road have just completed two mogul engines, and are engaged upon two more. They have 18x24 cylinders, 4 ft. 8 in. drivers, and boilers 50 inches in diameter, with 150 2-in. flues 11 ft. long. The fireboxes are 6 ft. 2¼ in. long, 5 ft. 7½ in. high, and 35⅝ in. wide. They have steel cross-heads and axles and cast iron links, and the link-lifters have a right and left nut, the same as the valve stem, to equalize the cut-off. Homogeneous open hearth steel is used for all new axles for engines, tenders and coaches.

THE Barney & Smith Manufacturing Company, of Dayton, recently closed for the following large contracts: Central Pacific railroad, for Southern Pacific, 600 freight cars; Cleveland, Columbus, Cincinnati & Indianapolis, 400; Utah Southern, 100, and have also completed 600 for the Cincinnati, Indianapolis, St. Louis & Chicago, 300 for the Central Pacific, and a number of other roads. The passenger department is very busy on sleepers for Central Pacific, Northern Pacific, Wagner, Baltimore & Ohio and Woodruff coaches for a dozen different roads. The firm now employs nearly one thousand men.

AMERICAN *Miller:* The Orville Milling Co., Orrville, is adding another story to its mill.——James M. Hope, Leetonia, has contracted with the Richmond City Mill Works, of Richmond, Ind., for the machinery of a three run mill, including water wheels.——Simpson & Co., Cincinnati, are to do the millwright work and supply the furnishings for a 250-barrel mill now being erected at Kansas City, Mo.——Messrs. Beaghler & Pridey, Middlepoint, have ordered a complete outfit for a three-run mill of the Bass Foundry and Machine Works, of Fort Wayne, Ind.——Messrs. Simon Gebhart & Sons, Dayton, are remodeling their mill to the Jonathan Mills System of Gradual Reduction, and increasing its capacity to 450 barrels per day.

THE Wabash, St. Louis & Pacific car shops, at Toledo, are very busy upon new work and repairing. A force of about 400 men is employed. The new work in hand consists of 300 stock, 300 twenty ton coal, 15 baggage, and two pile-driver cars. The latter are very strongly constructed and have two body bolsters so the trucks can be shifted back toward the center. The company are also having built 3 dining cars at Dayton, 10 coaches at Springfield, Mass., and 4 coaches at Troy, N. Y. The car-builders' standard axle has been fully adopted by the company, also a standard truck, of which we have been promised drawings for illustration in a future issue. Mr. Kohler, the master car-builder, has invented a new safety stove for coaches and baggage cars. It is a handsome design, small and compact, the fire being confined so it cannot escape in case the stove is upset or displaced.—*N. Y. Nat. Car Builder.*

CLEVELAND *Herald:* Business is active with the Farmers' Barbed Fence Company, Cleveland, which began operations on the 1st of January last. The capacity of the establishment will be doubled in a few weeks by the introduction of more machinery. The market sought is largely West, though the demand in Ohio and Western Pennsylvania is rapidly increasing.——The Cleveland Spring Company are employing their usual quota of men, and find business fairly good, with orders largely from the Western and the Southwestern States.——The Viaduct Foundry, Cleveland, Aenis, Carlin & Strangward, proprietors, is engaged in manufacturing general machinery castings, making a specialty of light castings to order. The property known as the Tilden Foundry is occupied by the above firm, and twenty to thirty men are employed. Business is good and promises to continue so through the season.——The Cleveland Machine Company, which has been estabiished for about seven years, is manufacturing several specialties that are already in use in some of the best establishments in this country and Europe, and which can hardly fail to rapidly come into general use among the best firms. The first of these is a machine for making paper boxes, having a capacity for making twelve thousand boxes a day, and is now in extensive use. Another machine, just being introduced to the trade, is a packing machine for automatically weighing and packing with accuracy and neatness in boxes or cans such articles as starch, tea, baking powder, etc. This machine, which is very neatly and compactly made, has a packing capacity of from 10,000 to 15,000 packages a day. Other specialties are the Shepherd & Folsom anti rattling shackles, and the Shepherd conical bolt, both of which seem pretty certain to meet with a large sale. The factory itself, which is a model of neatness and order, is running full time. ——The Fulton Foundry, Cleveland, established in 1864, is employing about thirty men, and the volume of orders is satisfactory, though margins are claimed to be small. All the other interests have been purchased by S. M. Carpenter, who is now the sole proprietor. Car wheels, driving wheels, steam cylinders, rolls, etc., are made at the Fulton.——Bowler & Co., Cleveland, successors to

Bowler, Maher & Brayton, are employing about 150 men, and are turning out about 100 car wheels a day.

THE *Cleveland Herald* referring to the engines and boilers of the City of Rome says: The engines are of the style known as combined, or compound engines, and consist of one high-pressure cylinder, 32-inch bore and 48-inch stroke, and one low-pressure cylinder 60-inch bore and 48-inch stroke; one being placed forward of the other, and both connected to one shaft. The cranks of each engine are placed directly opposite to each other, and not as it has been the practice heretofore, at right angles with each other. The Cuyahoga Works were the first to adopt this plan on lake steamers, they having constructed the engines of the Amazon in this way several years ago. The great value of this arrangement of the cranks is, that when one engine is making its downward stroke, the other engine is making its upward stroke, and the shock of one engine is entirely counterbalanced by the other, and, as a consequence, the hull does not receive any of the pulsation of the engines, as it would, were a single crank used; or, were two cranks at right angles used.

THAT Cleveland, says the *Herald*, is growing and taking rank with the first manufacturing cities of the country is becoming every day more evident. Capitalists look favorably upon its advantages, its enterprise, and rapid growth, and do not hesitate to invest their money in manufacturing and commercial concerns here. Nothing speaks better, or is better evidence of the prosperity of a place than the favorable view taken of it by capitalists from abroad and the assurance and confidence they hold regarding its prosperity. A new and important addition to the manufacturing industries will be the recently incorporated stock company under the name of the Whipple Manufacturing Company. This company has purchased three acres of land on Oakland street, West Side, opposite the breakwater, and will commence building immediately. The main building will be a large two-story brick, 180x35 feet, used as a finishing and machine shop, a foundry room 120x35 feet and a brass foundry 30x20 feet. The concern is an outgrowth of the Parker & Whipple Manufacturing Company, of Meriden, Conn., manufacturers of locks and other articles of builders' hardware. The incorporators are Messrs. H. J. P. Whipple, of Meriden; Webb C. Hayes, of Fremont; T. P. Handy, L. M. Hubbey, and Colonel W. H. Harris, of Cleveland. Other capitalists of Meriden and Cleveland are also interested. Mr. Whipple is in the city superintending the arrangements for building, and will probably act as general superintendent, while Mr. Webb C. Hayes, son of the ex-President, will, undoubtedly, be elected secretary and treasurer. It is expected the works will be opened about the middle of August next. The Wilcox & Treadway Company, whose extensive manufacturing establishment on Central Way has long been ene of the principal industries of Cleveland, have consolidated with the Peck, Stow & Wilcox Company, Southington, Conn. This great concern is the pioneer manufacturing company of all kinds of hardware and tinners' tools. Its principal factories are situated in Southington, Painesville, East Berlin, Kensington, West Cheshire, and Birmingham, Conn., and this one at Cleveland, in consequence of this consolidation will have additions made necessary for the increase of business.—— Messrs. Wilcox & Treadway are about completing a new foundry, 185x70 feet, and are putting up two large brick buildings 132 and 125 feet long respectively. All of this will of course necessitate the increase of help in the way of mechanics and machinists. The corporation has a capital of $1,500,000 and does an annual business of $2,000,000.

IN GENERAL.

AN extensive new cotton factory is to be erected at Camden, N. J.

How rapidly Chicago is coming to the front as a manufacturing city and trade distributing point may be inferred from the value of her exchanges for the year 1880, which amounted to $1,725,684,895.

THE Toledo, Delphos & Burlington narrow gauge company has contracted for the construction of 600 coal and 300 flat cars, part of which will be built by the United States rolling stock company in Chicago, and the rest by eastern shops. —*Chicago Railway Age.*

GEDDES & EAGAN, of the Sharpsville Machine Works, Sharpsville, Pa., call the attention of the trade in a newly issued circular to the fact that they have the patterns for the valves, and all iron work connected with the construction of the latest approved plans of the Whitwell ovens, and are prepared to build them complete, or any part connected with the same.

THE California Hosiery Company, Oakland, opposite San Francisco, Cal., on the other side of the bay, was organized May 10th, 1880, with a capital of $100,000. The pay roll amounts to $3000 per month. They purchase their own wool, which is sorted, washed, dried, picked, carded, spun and put into goods, undershirts, drawers and hosiery for men, women and children. Goods are of first quality. They are now working on a large government contract.

ADJUSTABLE DIE FOR SCREW MACHINES.

The method of cutting screw threads which we here illustrate is new in its application. Wells Bros. of Greenfield, Mass., make a specialty of the manufacture of these dies, and they state that

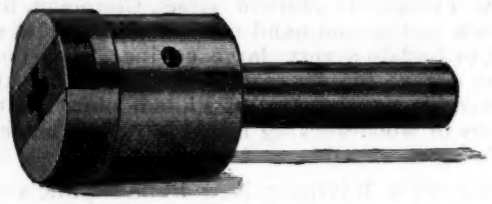


FIG. 1.

they have succeeded in producing dies which will make good threads and keep the same size corresponding with the tap. Fig. 1 shows the die, collet, and collet holder ready for use in the turret head of a screw machine. Fig. 2 shows the collet

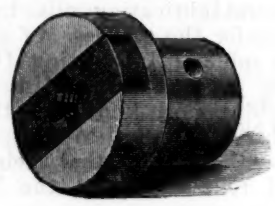


FIG. 2.

and die, which are kept together ready for use. The collets all fit the holder, and all parts are interchangeable, so that when dies are worn out new ones can be sent from the factory, where they are kept in stock. Fig. 3 shows a sectional view of die, with method of adjusting it to allow for wear

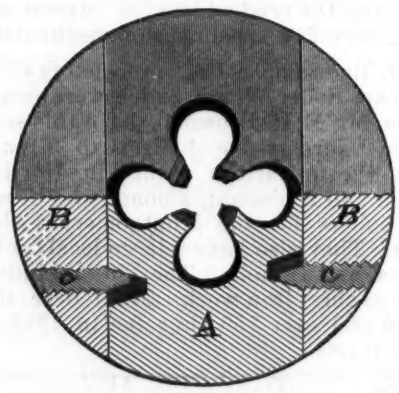


FIG. 3.

or to correspond with the tap. It being understood that the same screw which adjust the die also hold it down, and that the adjustment is only intended to allow for wear, or to make articles threaded fit tightly or loosely as required, no further explanation is required. All sizes of dies, from 3-16th inch to 1½ inches, have been thoroughly tested and have stood the test remarkably well.

A MISSISSIPPI planter wanted to turn his land into a stock farm. His neighbors, who stick to cotton, applied to a court for an injunction to restrain him from sowing grass seed, on the ground that grass would spread over adjoining plantations and unfit the ground for cotton. The injunction was granted.

MECHANICAL RECEIPTS AND ITEMS.

Hints on Cold Riveting.

The riveting blows should be given with a ball-faced hammer, and delivered with a view to stretch the whole end face of the crank-pin evenly. Otherwise the riveted surface will be apt to split. This usually occurs from not riveting the area at and near the circumference sufficiently, although it may occur from riveting that part of the area too much. The line of travel of the hammer should not be directly vertical but somewhat lateral in a direction from the centre toward the circumference. If the countersink is a deep one, it is desirable to leave the crank-pin sufficiently long, so that after the riveting has proceeded some time the surface of the metal which has become condensed and crystallized from the direct impact of the hammer blows, may be chipped away, leaving a surface that is swollen by the riveting without being so much condensed. This enables a much greater spreading of the metal without splitting it. If in this class of work the riveted piece (as the crank-pin) is not driven in very tight before riveting, the riveting blows will be apt to jar the pin back. Hence it is necessary to occasionally drive the pin home. The riveting should proceed equally all over, as if one side be welded in advance of the other it tends to throw the pin out of true. When, however, the riveting begins to bed the pin, four equidistant places may be riveted home in advance so as to bring the pin home and hold it firmly.—*Joshua Rose in Blacksmith & Wheelwright.*

Chinese Gold Lacquer.

An excellent imitation of the celebrated Chinese gold lacquer may be prepared by melting two parts of copal and one of shellac, so as to form a perfect fluid mixture, and then add two parts of hot boiled oil. The vessel is then to be removed from the fire, and ten parts of oil of turpentine gradually added. To improve the color, an addition is made of a solution in turpentine of gum gutta for yellow, and dragon's blood for red. These are to be in sufficient quantity to give the desired shade. The Chinese apparently use tinfoil to form a ground upon which the lacquer varnish is laid.

Mixed Steel in the Workshop.

The Steel Company of Scotland has published the following rules: "Welding: In welding mild steel plates, it is not necessary to heat them to the same high temperature as in the case of iron. Instead of a 'welding heat,' a bright yellow heat is sufficient; and if flux is required, it need only be three parts clean sand to one part common salt, moistened and thrown on the parts in the fire. In making the weld, the fuel used should be free from sulphur, otherwise red shortness may result. (2) Flanging: In flanging, care should be taken in the local heating that the parts are not overheated, and that no hammering or work is put upon them while at a black heat; further the plate should be protected from chills, if it is not convenient to keep it warm. (3) Annealing: After completing either welding or flanging, the whole piece should be heated to a cherry-red heat, and slowly cooled.

To Weld Springs.

A correspondent writes about welding springs: I will state how I have had the best results. Heat to a cherry red, chamber the ends short, split into three equal parts about five-eighths up. Bend the two outsides one way and the centre the other way of both pieces to be welded. Then put together and close the laps down, making them so they will stick together; then take a light borax heat and work quick. Do not hammer too much on one side, but turn in quick succession to prevent from chilling the scarf. This way of lapping springs requires no upsetting of the ends, and is the best way I ever saw to put springs together to get a heat. Hammer all the temper in that you give them.

To Coat Copper or Brass with Silver.

To coat copper or brass objects with silver, without difficulty or loss of time, the following process is given to the *Gewerb.-Bl.f. Ost-u. Westpreussen:* Mix 3 parts of chloride of silver with 20 parts of powdered cream of tartar and 15 parts of powdered common salt. Moisten a suitable quantity of the mixture with water, and rub it with a piece of blotting paper upon the metallic object, which must be thoroughly clean. The latter is afterward rubbed with a piece of cotton upon which precipitated chalk is dusted, then wash with water, and polish with a dry cloth.

ITEMS OF INTEREST.

SAN FRANCISCO is about to try her hand at iron steamship building.

THE number of hogs packed in Cleveland since March 1st is 65,000.

THE window glass manufacturers of Pittsburgh have closed down their works for the summer.

WHOLESALE emigration of the Swedish peasantry to this country is alarming the government of Sweden.

SEVEN million copies of the Revised New Testament were sold in London in the first six days after publication.

THE national bank circulation is higher than ever before, and is steadily rising. It is nearly $363,000,000.

THE dome of the cathedral at Rome is illuminated outside and inside by the Siemens, Electric light; the effect is brilliant.

THE Lehigh Valley Railroad Company is preparing to experiment with electricity, as a substitute for gas, in lighting the cars on all through trains.

TEN Chinese engineers have arrived at Berlin, en route for Stettin, Germany, where they are to watch the construction of a frigate ordered by their government.

THE new iron excursion steamers now building have several novel features, among others the gallows frame is of iron and the boilers are of the locomotive pattern.

"I THINK the goose has the advantage of you," said the landlady to an inexpert boarder who was carving. "Guess he has, mum—in age," was the withering retort.

AT New York, the Brazilian line of steamers known as the American Line, has been withdrawn, foreign rivalry proving too great, and no subsidy being forthcoming.

THE International Telegraph Company has been incorporated at Albany, New York. The capital is $10,000,000, and Cleveland and Cincinnati are included in its route.

IT is calculated that the number of railway locomotives now employed in the United States represent a capital far larger than the total which England has invested in ships.

EASTERN ship yards are launching a new vessel every few days. Roach has twelve vessels under various stages of construction, among them are three of the New York iron excursion steamers.

THE contract for the experimental shipping of 30,000 bushels of spring wheat from St. Paul, Minn., to Glasgow, Scotland, by barges to New Orleans and thence by steamer, has just been closed in St. Louis.

A MAN having had $65 stolen from him, received a note with $25, saying, "I stole your money. Remorse naws at my conshens, and I send some of it back. When remorse naws again, I'll send you some more."

THE Commissioners of the Cincinnati Industrial Exposition report that the guaranteed fund of over $70,000, has all been subscribed for. They feel assured that the "Ninth" Exposition will be a grand success.

A TRAVELING soap peddlar's persuasive voice broke up a railroad meeting in Findlay the other night, the people all leaving the meeting to listen to the soap man's song. Findlay is in earnest about her railroads.

THE formation of a mammoth express company by the consolidation of the United States express with the Pacific express company, operating over the several Pacific roads and the lines of the Gould system, is said to have been effected.

THE expression "A 1," popularly used to designate the first quality of articles, is copied from the symbols of the British and foreign shipping list of Lloyds. "A" is used to designate the character or condition of the hull of a vessel, and the figure "1" to denote the efficient state of her anchors, cables and stores. If those are insufficient in quantity or quality, the figure "2" is used to indicate the same. When it is said of a ship, she is "A 1" it means that she is all right as to hull, rigging, and equipments.

A BUSHEL of corn can be taken from Chicago to Liverpool by way of New York, paying all lake and ocean insurance rates, elevator rates at Buffalo and New York, port dues and profits to intermediate handlers, for twenty-four cents a bushel.

THE Elevator Ring at Buffalo, N. Y., has collapsed, owing very largely to the efforts of Mr. Philip Armour, of Chicago. The price for handling grain at that point dropped from three-fourths of a cent per bushel to one-eighth of a cent.—*American Miller.*

A FRENCH scientist claims that he has succeeded in reversing the result obtained by Professor Bell, in producing light from sound. He has described an experiment to the French Academy, by which he contends a transformation of sound into light is produced.

MR. JACOB REESE, of Pittsburgh, has met with an interference in his attempt to get a patent on his dephosphorizing process abroad. He applied for patents in England and France but was met by parties who claimed to have discovered the process before he did.

THE central station for the carrier pigeons kept by the German Government for use in case of war, is at Cologne, in a disused monastery. The keeper and officers are located on the ground floor, and above is a huge pigeon cote. The birds are kept in training by being sent on journeys regularly.

THE importance of covering the face of pulleys with leather is realized by but few persons having charge of machinery. Full 50 per cent. more work can be done without the belts slipping if the faces of the pulleys be so covered. Leather belts used with the grain side to the pulley will not only do more work but will last longer then if used with the flesh side to the pulley.

IT is a popular notion that Ireland sends more emigrants to this country than any other foreign nation. This is an error. According to reports from the Bureau of Statistics, in the nine months ending March 31, 1881, 103,078 emigrants landed from Germany, and only 33,339 from Ireland. Germany sent 20,781 more than England, Ireland, Scotland, and Wales combined.

A DIAMOND expert of Chicago asserts that many of the so-called solitaires, sold as single stones, are made up of small stones cleverly put together. Under the blowpipe they separate. He adds the surprising statement that not one diamond in ten sold in this country is other than the refuse of the London market. Nearly all are off-colored speck, or feathered, and are sold at a fictitious value.

THE Western Reserve of Ohio is known far and wide, yet to many, perhaps, it is not known why it is so called. Hon. Harvey Rice, in his book "Pioneer Life of the Western Reserve," gives the explanation, which is as follows: "The Northern part of Ohio, known as the Western Reserve, embraces a territory containing nearly three and a half millions of acres. It is so called because it was 'reserved' as the rightful share of the State of Connecticut in the final adjustment of Colonial land claims made by Congress between the States soon after the close of the Revolution."

IT is stated that the Bank of France has almost entirely abandoned chemical tests in favor of the camera for detecting forgeries. The sensitive plate not only proclaims forthwith the doing of the penknife or eraser, but frequently shows under the forgery the sum originally borne by the check. So ready is the camera to detect ink marks that a carte de visite inclosed in a letter may to the eye appear without blemish, while a copy of it in the camera will probably exhibit traces of writing across the face where it has merely been in contact with the written page.

THE commonest and most useful tools we have are remarkable copies of some parts of our body, and simply a further completion of them. In the first stone hammer man has unknowingly imitated his forearm with closed fist; in the shovel and spoon we see the forearm and hollowed hand; in the saw we find a reproduction of a row of teeth; tongs represent the closing together of thumb and fingers; in the hook is a bent finger reproduced; the pencil is simply a prolongation of the forefinger; so, we see in all instruments, from the simplest to the most complicated, only some modification of the human system.

AN experiment is being made on the Providence railroad of an engine with four cylinders, double the usual number, the advantage claimed being increased speed, with less danger of leaving the track, and a much steadier motion while running.

HASTINGS HUGHES, a brother of Thomas Hughes, M. P., says of the Rugby colony. "I am convinced it will grow into a large and prosperous city, and I do not in the least mind the long journeys to and from my business. Our life is somewhat primitive. We get out of bed at sunrise, and turn in shortly after 9 P. M. We all turn to with a will. The motto of our community is 'Shoulder to shoulder.' General equality prevails, and the hardest workers among us are, as a rule, those men who, from the station they occupied and the ideas they imbibed at home, one would have supposed the least likely to turn to manual labor. And manual labor it is. All of us dig and delve as Adam did."

AN experiment made in the port of Kiel proves that heavy weights may be readily lifted from the bottom of the sea by means of a balloon. The balloon is made of canvass and metal plates, with an attached cistern containing carbonic acid gas compressed to a liquid state. When made fast to a sunken object the communication between the cistern and balloon is opened; inflation takes place; the sunken vessel, or whatever else it may be is lifted, and can be towed away at pleasure. In the experiments at Kiel an anchor-stone weighing fifteen tons was thus lifted from a depth of thirty-two feet. The lifting power of a balloon ten feet in diameter is said to be more than one hundred tons.—*Pittsburgh Brick, Tile & Metal Review.*

IT has no doubt, been a mystery to many how the iron ball inside of sleigh bells got there, and it is said to have taken considerable thought on the part of the discoverer before the idea struck him. In making sleigh bells the iron ball is put inside a sand core, just the shape of the inside of the bell. Then a mould is made just the shape of the outside of the bell. This sand core, with the jinglet inside, is placed in the mould of the outside, and the melted metal is poured in, which fills up the space between the core and mould. The hot metal burns the core so that it can all be shaken out, leaving the ball within the shell. Ball valves, swivel joints and many other articles are cast in the same manner. This was, indeed, an important discovery.—*St. Louis Age of Steel.*

ANOTHER telephone is in the field. In the case now being tried at Harrisburgh, Pa., of the Peoples Telephone Company against the Bell, Edison and Gray patents, plaintiffs have shown conclusively already by five witnesses that the Drawbaugh telephone was in practical use and operation in 1868, eight years before any of the above patents were issued, and have on hand a hundred more witnesses to swear to the same thing. The points they are trying to make are these: That Daniel Drawbaugh, a plain Pennsylvania farmer, who had a large family and was very poor, invented the telephone in 1868, and had it in practical use as early as that date, and that, therefore, he being the original inventor, is entitled to the patent; that neither Bell, Edison nor Gray are; and that if he is not entitled to the patent, nobody is, and therefore the invention is open to the public. He has the original machines, claims that he never abandoned the invention, but was too poor to press it; asks for a patent, and says he proposes to furnish the instrument, better than any now in existence, for $10 a year to subscribers.

SHAFT COUPLINGS.—There is an innate wickedness in the average shaft coupling; an inborn tendency to get loose, split, ring off, stick fast, etc. It is not reasonable for any one to expect that a line of shafting will keep in good order if hung to the bottom of a springy floor. The shafting should not be put up before the floor has received some, if not all, of its load, especially if there be heavy machines above it, which will, when put up, tend to sag the floor. Where the shafting is attached to cast iron columns supporting the floor there is less trouble from sagging, either when the first load is put on the floor or afterwards when the building settles. The hanger adds nothing to the torsional resistance of the shaft which it supports. The torsional strength depends upon the length and diameter of the shaft. Some recommend that fly wheels be put on long lines of shafting as tending, in a great measure, to equalize the strain of transmission.—*Leffel's Mechanical News.*

MISCELLANEOUS RECEIPTS.

TO PRINT IN GOLD AND BRONZE.—To print metallic powder (bronze or gold powders, etc.,) a solution of Arabic or Senegal gum is printed, and the metallic powder is dusted on the print by means of a fine sieve, which is slightly shaken on the fabric, when it is fixed only where the gum has been printed, and the surplus of the powder is shaken away and used over again. No steaming is required, but the fabric is dried at once. Very pretty effects are obtained in this way, only, unfortunately, it is not very solid.

HARDENING OF TOOLS.—It is said that the engravers and watchmakers of Germany harden their tools in sealing wax. The tool is heated to whiteness and plunged into wax, withdrawn after an instant and plunged in again, the process being repeated until the steel is too cold to enter the wax. The steel is said to become, after this process, almost as hard as the diamond, and when touched with a little oil of turpentine, the tools are excellent for engraving, and also for piercing the hardest metals.

TO MAKE A MAGIC INK.—A solution of nitrate or chloride of cobalt, or chloride of copper, mixed with a little gum or sugar, produces a "magic ink," which is made visible by warming, either by holding against the stove or over a burning match. Potassium ferrocyanide in solution may also be used; but this requires a developer, for which either copper or iron sulphate may be employed. With the former the writing will appear in brown, and with the latter in blue color.

TO REMOVE OLD PAINT.—To remove old paint, slake three pounds of stone quicklime in water, and add one pound American pearlash, making the whole into the consistence of paint. Lay over the old work with a brush, and let it remain from twelve to fourteen hours, when the paint is easily scraped off.

TO DRY POTATOES.—First slice the potatoes, then put them in a steam box three or four minutes to keep the starch in, and then subject them to drying. If not placed in the steam box, the starch would come out. When used, they are soaked, and are then like fresh potatoes.

TO POLISH BRASS.—Pulverize a sufficient quantity of sal-ammoniac very finely and moisten it with soft water, rub the paste on the brass, which should be warmed meanwhile over some clear coals of wood; then rub dry with a soft leather, dusted with a mixture of bran and Spanish white. Another method is to wash the brass with a solution of one ounce of alum boiled in a pint of strong wood-ash lye; when dry, polish it with fine tripoli on a soft chamois leather.

TO BRONZE WOOD.—To bronze wood, proceed as follows: First stain the parts black; take japanners' gold size with a little Roman ochre and Prussian blue; go over the black part lightly, then let it dry till it feels just sticky to the fingers, but not come off; then with a hard ball of cotton dipped in any of the bronze powders rub those places, and if you think proper give it a thin coat of japanners' gold size, then with spirits of turpentine.

TO PREVENT INCRUSTATION ON BOILERS.—One method of preventing incrustation in steam boilers is by adding a small quantity of muriate of ammonia to the water, which will have the effect of softening and disintegrating the carbonate of lime and other substances deposited by the water during evaporation. It is said that the action of muriate of ammonia on the metal, whether copper or iron, is harmless. The quantity used is one pound of muriate of ammonia to every 1,800 gallons evaporated.—*Pittsburgh Brick, Tile and Metal Review.*

TO PREVENT SALINE ACCRETIONS ON BRICK.—The *American Architect* gives the following recipe for the prevention and removal of the white saline accretion which sometimes appears on brick work: The "saltpetring" of brick work can generally be prevented by adding oil to the mortar, at the rate of a gallon to the cask of lime. If cement is used in the mortar, an additional gallon of oil must be allowed for each cask of cement. Linseed oil is generally employed, but any kind which does not contain salt will answer. The incrustation, once formed, can be removed with hot water, or by the muriatic acid generally used for cleaning down brick work, but it will reappear again by oxidation from the interior of the wall, and usually leaves a permanent black or brown stain.

RAILROADS AND TRAFFIC.

THE Southern Pacific company is preparing to build a branch from Yuma on the border of Arizona, south to Point Isabel, at the head of the Gulf of California, where it will erect warehouses and establish a steamship line to Mexican ports.

THE Metropolitan Elevated road in New York proposes to carry freight as well as passengers. It will be an exhilerating amusement on a hot day for a traveler to take his trunk on his back and climb up one of the lofty flights of stairs leading to the waiting rooms of the road.

THE Wheeling & Lake Erie road is to be built to Dalton, O., by September.

THE Board of Inspectors of the Cleveland & Pittsburgh road have finished their tour over that road and report that everything is in apple pie order. The wooden bridges on this road are to be replaced by iron ones.

THE new Valley Railroad depot at Canton is a model of beauty and convenience.

FROM March 1, 1880, to April 1, 1881, there were constructed in the United States 6,113 miles of railroad, according to the compilation of the New York *Bulletin*. The number of miles projected amounts to 14,277, the number of roads being 182. Thirty-seven projected roads are capitalized to the amount of $68,635,000, the total mileage being 3,894. For each mile of road there is issued, therefore, about $17,625 of capital stock. It appears that railroad construction is again approaching the magnitude it reached just before the great panic. More miles were built in 1871 than in any other year. There were only 23 miles in operation in 1830; in 1831, 72 miles were constructed. The number of miles in operation in 1879 was 86,497.

A "PRACTICAL ENGINEER" writes as follows to the Detroit *Free Press:* So much has been said of the dauntless courage and self-sacrificing heroism of locomotive engineers as displayed during the few seconds intervening between the discovery of immediate impending danger and the actual occurrence, that it has become the subject of much annoyance to our profession. During my experience of over ten years as engineer of both slow and fast trains, on various prominent lines, there never has been, to my knowledge, one accident where the presence of an engineer on his engine, after certain acts have been performed (unless as a precaution of personal safety), was not the height of foolhardiness, and this in justice to all concerned in the general result. On a passenger train, after the air brakes are applied, the engine reversed and the sand lever open, the presence of a whole cab full of cool-headed, experienced engineers would not alter the result one jot.

THE extraordinary activity in railroad enterprises has reached the sleepy State of South Carolina, and is going to give Charleston direct communication with the Northwest. The South Carolina Railroad is one of the oldest lines in the country, but it runs up apainst the Blue Ridge and stops, and at its seaboard end has no terminus at a water front. A company of Northern capitalists have taken hold of it. They will build a wharf in Charleston and carry it over the mountains into Tennessee so as to secure Northern connections.

THE whole system of elevated railroads in New York city embraces 32 miles, divided into four lines, all running north and south. On these four lines 198 locomotives and 571 passenger cars are in daily use. There are 161 stations or stopping places on the four lines, requiring four station inspectors, 258 ticket agents and 319 gatemen, besides porters to clean and keep in order. A vast number of machinists, draughtsmen, &c., are employed. Most of the ticket agents are telegraph operators. The receipts vary from fourteen to eighteen thousand dollars per day. The roads this year will probably carry 75,000,000 passengers.

IRON is being laid north from Ann Arbor for the Toledo, Ann Arbor & Grand Trunk line, which will be completed as far as South Dyon by July 1st.

THE Cleveland, Youngstown & Pittsburgh narrow-gauge following, the tracks of the Connotton Valley Railway line, will branch from Connotton at Twinsburg. From that point it will be extended, either by employing the tracks of narrow-gauge lines already constructed, or by an entirely new line, to Youngstown.

THE surveying corps on the Cleveland, Wooster & Southern Railroad, have surveyed the line as far as Berea.

AN important meeting of the Wooster, O., citicens has been held in favor of the Wooster & Lake Erie railroad, the preliminary survey of which will shortly be commenced.

THE projected Continental Railway, as set forth in a pamphlet that has just been issued, consists of the proposed construction of a continuous double-track railway from New York City to a point on the Missouri River near Council Bluffs, the main line passing through New Jersey, Pennsylvania, Ohio, Indiana, Illinois and Iowa, thus affording a more direct outlet than now exists for the products of the west, northwest, and southwest, to eastern markets; and also furnishing transportation for a heavy westward-bound coal traffic in the future. Time freight trains will be run at the rate of 20 miles an hour.

THE *Railway Age* proposes that the inventors of car couplers have a convention at Chicago during the present year for the purpose of making a competitive trial of their respective devices.

IT is reported that the Baltimore and Ohio Railroad Company have bought the Cleveland and Mt. Vernon road and will run a branch from Hudson to this city, passing through the Eighteenth Ward. It will run nearly parallel to the C. & P. R. R.—*Cleveland Herald.*

Painting Machinery.

Great lack of taste is often displayed in painting machinery, which is too often daubed with the most glaring and ill contrasted colors that disgust the sight and mar the general appearance of the machine. The following remarks will assist our readers to a better comprehension of what we mean, and also to select proper artistic contrasts. We have seen machinery in which bright, gaudy reds and scarlets mingled with bright blues and yellows in the most extraordinary way. A very little consideration will show that such combinations are breaches of harmony, which require that one color shall be subservient to the other, so as to pleasantly blend the whole an even and pleasing tone. Thus, the complementaries of red are green; of blue, orange; of yellow, violet. Precise rules, however, can not be laid down, and much depends upon artistic effect to be decided by the reasoning eye. The following suggestions as to contrasts, however, may be found of assistance: I. Black and warm brown. II. Violet and pale green. III. Violet and light rose color. IV. Deep blue and golden brown. V. Chocolate and bright blue. VI. Deep red and gray. VII. Maroon and warm green. VIII. Deep blue and pink. IX. Chocolate and pea-green. X. Maroon and deep blue. XI. Claret and buff. XII. Black and warm green. XIII. Slate color with nearly all bright colors excepting blues. XIV. Buff and black. XV. Buff and blue or mauve, and so on.

THE STENOGRAPHIC MACHINE.—The stenographic machine, which was presented on March 11 to the Societe d'Encouragement, meeting under the presidency of M. Dumas, is a small instrument, about 1 foot and a half long and 1 foot wide, placed on a stand 2½ feet high, on which it is easy to play with both hands. The number of elementary signs is only six, which by mutual combination give seventy-four phonetic letters. It has been worked with astounding velocity, reproducing the words pronounced by a man reading a passage from a book. The limit of velocity is stated to be 200 words in a minute, which is more than sufficient, no speaker having ever uttered more than 180. The signs are very neatly printed on a paper band passing automatically under the types. The system is so perfect that it can be used for reproducing a language that is neither spoken nor understood by the operator. But under such circumstances the orator must speak slowly and in a very distinct manner. This machine was worked by a young lady belonging to the stenographic staff of the Italian Senate, where the machine is in constant use.

TO MEET the requirements of those desirous of taking the TRADE REVIEW for a limited time in order to judge how far it will be advantageous to become annual subscribers, it will be mailed to them for three months on receipt of fifty cents in postage stamps or P. O. order.

MINES AND MINING.

THE product of the Tip-Top mine, Arizona, for March and April, from a ten-stamp mill, is estimated at $100,000.

ANOTHER cargo of eight large silver bricks has come down from the Silver King, Arizona, weighing about half a ton. This wonderful mine is now pouring out a constant stream of silver and with sufficient milling capacity could turn out five or ten times as much. A hundred stamp mill located on the river, where wood and water are abundant, would easily turn out from ten to fifteen thousand dollars daily.—*N. Y. Mining Record.*

THE ore product from the Evening Star mine, Colorado, this month will reach fully one thousand three hundred tons. The shipments average about fifty tons a day. The entire average of the ore will net the company about seventy dollars per ton above smelting charges.

THE output of the Butte district, Montana, is already over $100,000 per week and soon as the Parrott smelters are in full blast and the Moulton mill begins to grind away, the showing for the district will be very much better.

LEADVILLE'S present daily output of smelting ores is about eight hundred tons. The product and shipments of free milling ore amount to about one hundred tons more. In addition to this amount one hundred tons of iron ore, useful principally as a flux, are shipped to the reduction works. Leadville smelters are gradually adding economical improvements to their works which enable them to treat ores more rapidly and cheaply.—*New York Mining Record.*

ONE of the promising features for the future production of the precious metals in California is the organization of capital for the systematic drainage of its river beds, so as to lay bare the auriferous gravel deposits known to exist in extensive river reaches hitherto unattainable. One of the most extensive of these undertakings is that of a company, said to be of Eastern origin, having for their objective the thorough drainage of about thirteen miles of the north fork of Feather river, known as the Great Bend—a perfect horse shoe in form. the drainage is to be effected by a tunnel of about 12,000 feet of sufficient dimension and fall to carry the whole stream through it. At the head of the tunnel, a permanent dam, in part of masonry, will be constructed around the old river bed.

A NEW gold field said to be of vast extent and richness, has been recently discovered at a place called Cicapra, Venezuela, about fifty miles northeast of Caraal. A good deal of gold has been obtained lately from that locality, but this has only been surface gold. According, however, to the opinion of experienced mining engineers who have visited that district, it is likely to become, if properly developed, amongst the richest of these auriferous regions.

THE Superior promises to be the big mine of the Marquette range, this year. —*Mining Journal.*

THE Menominee mining company has decided to build a furnace at Florence and will commence work thereon at once.—*Iron Port.*

A VALUABLE find of the royal metal has been found at the Oakland mine, four miles from the city of Las Vegas, New Mexico, the incipient assays of the ore from which show a marvelously paying yield of gold as also smaller quantities of virgin silver. The increase in yield of this mine as the shaft progresses downward is most flattering. At thirty-five feet the ore has assayed forty dollars to the ton.

AN extensive vein of bituminous coal has been discovered in the Gunnison Valley, Gunnison, Colorado, sufficient to supply all the demands for years to come. Thousands of acres of coal lands have been located on this vien. The coal is free from slate, is hard, and burns freely with a bright flame. It cokes, but not so freely as Pittsburgh coal.

IN consequence of the failure of the supply of hard ore from the Pioneer mine, one stack of the Pioneer furnace will be blown out or banked. The mine is apparently mined out.—*Negaunee Herald.*

THE California furnace property, in Bratton Run Valley, Rockridge county, Va., comprising 8,000 acres of land with immense beds of iron ore, limestone and sandstone, has been purchased by a company composed of English capitalists known as the Iron and Steel Association of Virginia, limited. The new owners will commence the erection of two blast furnaces, with a capacity of 150 tons each, at once.

THE Sandusky and Shawnee Coal and Iron Company, owning mines and furnaces at Shawnee, Perry county, Ohio, have just sold their property to Boston parties for $220,000 cash.

NUMEROUS mica discoveries have been made in the Black Hills, which will yield a large return on capital invested.

SCIENCE AND INVENTION.

A NEW LUBRICANT.—A pulverulent lubricating material for axles, shafts, etc., is prepared by Herr Drechsler, of Dresden, thus: The finest graphite powder is worked up thoroughly with egg white, or yellow, or both, to a firm dough, which, in a metallic vessel, is kept in a vessel of boiling water till the egg white and yellow are fully coagulated. the mass is then dried at 90° C., so thoroughly that it can be bruised or stamped to powder. This powder is applied to a slowly revolving axle or shaft till axle and bush take the peculiar dark shine of graphite.

NEW KIND OF CELLULOID.—A new kind of celluloid is said to be obtained from well peeled potatoes, which are treated for 36 hours with a solution of 8 parts sulphuric acid in 100 parts of water. The mass is dried between blotting paper, and then pressed. It is further stated that in France smoking pipes are manufactured out of this new material which are quite equal in appearance to the meerschaum. By heavy pressure the material acquires such a hardness that billiard balls can be manufactured with it.

WELDING CAST STEEL.—A German savant, Herr Rust, is reported to have discovered a mixture which permits of welding cast steel. It consists of 64 parts of borax and 17¼ parts of sal ammoniac, pulverized, mixed and heated, until the water of crystalization of the borax, dissolves the sal ammoniac. When the odor of the disengaged ammoniacal gas is no longer perceptible, a small quantity of water, equal to that evaporated, is added, and then 16¾ parts of ferrocyanide of potassium and 5 parts of colophany are added in succession. The mixture is shaken until it attains a plastic consistency through the resin, and as soon as the smell of cyanogen is perceived, is poured on a cast iron plate to a thickness of half an inch. This product, cut into two small tablets, soon hardens, especially if turned over, and may be kept any length of time without deterioration. When required for use, it is reduced to powder and projected on to the surfaces that are to be welded, which need not be heated more than to bright red. It is the boracic acid which constitutes the fusing element, while the ferrocyanide of potassium restores the carbon that passes away in the cinder, and also the nitrogen which is supposed to exist in steel.

REDUCTION OF METALS.—In this country there is a very heavy production of what is called "base bullion." Last year it amounted to 75,000 tons. This is lead which contains very small quantities of silver and gold. The usual method employed for refining is costly, and no inconsiderable amount of the silver and gold is wasted. Mr. N. C. Keith has invented a process which consists in making the lead one of the poles of a battery, and, by means of a suitable solution, depositing the lead upon the other pole, while the silver, gold, and other metals are left behind.

MATTER AND ENERGY.—Matter and energy, in one sense, may be said to be the foundation of the art. It is even supposed by some that matter does not exist, except as energy. The specific energy of matter was at one time called specific heat. Light, heat, and electricity are commensurable and interconvertible; that is, a certain amount of energy in one form may be made to produce a definite amount of energy in some other form. The old phlogiston theory supposed that heat was a something.

STORING UP ELECTRICITY.—The Faure battery continues to attract attention in France and England. A correspondent of the *London Times* tells how he carried a box of the stored-up electricity from Paris to Glasgow. He says: A Faure battery, or *pile secondaire*, was charged with the electric fluid direct from the ordinary Grove battery and in my presence. The receptacle consisted of four Faure batteries, each about five inches diameter and ten inches high, forming a cylindrical leaden vessel, and containing alternate sheets of metallic lead and minium wrapped in felt and rolled into a spiral wetted with acidulated water, and the whole placed in a square wooden box, measuring about one cubic foot and weighing some seventy-five pounds. This was protected by a loose wooden cover through which the electrodes (in lead) protruded, and were flattened down for convenience of transport. This box of "electric energy" was handed to me by M. Faure, at my request, with the object of submitting it for examination and measurement to the eminent electrician, Sir William Thomson, at the University of Glasgow. In about seventy-two hours from the time of charging in Paris, I had the satisfaction of presenting to Sir William Thomson M. Faure's "box of electricity," intact and potent, holding by measurement within that small space of one cubic foot a power equivalent to nearly one million of foot pounds! This wonderful box is now deposited in the laboratory of the Glasgow University, and was submitted to a series of tests and measurements, the results of some of which made Sir William exclaim: "Why, it's a little witch." The writer enthusiastically adds that the advantages to science and humanity at large which this discovery (or rather perfection of M. G. Plante's discovery) is destined to afford are of such transcendent importance that we cannot for the present form any correct estimate of their magnitude.

MARKETS.

FINANCIAL.

Office of the TRADE REVIEW.

FRIDAY EVENING, June 10.

Bank deposits are augmenting at a larger ratio than loans. Money is obtainable at 7 per cent on prime collaterals and five per cent on call. There is a fair demand for Eastern exchange. Drawers rates for foreign exchange are unaltered.

NEW YORK.--The misery of stock speculators just now is the scarcity of lambs to shear. The condition of the stock market is such that weakness at one point exerts an influence throughout the whole, despite the most determined efforts to divide the market into two classes; therefore to sustain one class it has been found necessary to hold the whole market steady. Government bonds show declines of ¾ per cent for the 5's and ¼ per cent for the 4½'s. Aside from two or three issues, railroad bonds are dull, and prices generally lower.

IRON.

A leading article in the present issue of the TRADE REVIEW on the iron manufacture of Northern Ohio and the iron trade of Cleveland, dispenses with our usual detailed report in this column. The trade in manufactured iron is more active. There is some irregularity of prices in the cheaper grades. We quote Cleveland prices for Scotch pig as follows: Eglinton, $22; Carnbroe, $23; Coltness, $24; Glengarnock, $22.50, and Gartsherrie, $23.50@$24. Middlesboro' iron is quoted at $18.50@$19. The feeling among dealers in old iron has improved. They are confident in a stronger demand accompanied by some advance on present quotations. An active demand continues for steel and iron rails. The lower ruling of Bessemer pig has led to the entertainment by manufacturers of lower offers for steel rails.

CINCINNATI -(Reported by Rogers, Brown &Co.) There is little change in the pig iron market. Inquiries are numerous and steadily increasing and a good business is being done in moderate sized orders, but few large sales, however, are made. The strike of the Amalgamation Iron Workers stops temporarily the demand for forge irons for local consumption; but it has produced no appreciable effect upon the market for pig metal. Foundries are overrun with orders, and are melting an unprecedented amount of iron. We quote as follows--4 months time: Hot Blast Foundry Iron—Hanging Rock charcoal No. 1 $26.00@27.00,: 4 months No. 2, 25@26, 4 mo.; Southern No 1, $25@25.50, 4 mo ; No 2, $24 00@ $25.00, 4 mo.; Strong Coke, No. 1, $23@24,00, 4 mo.; No. 2, 22.00@23.00, 4 mo.; No. 3, $21.00@22,00, 4 mo.; Hocking Valley, No. 1, $23 00@24, 4 mo.; No. 2, $21.00@$22, 4 mo.; American Scotch, No. 1, $22.00 @23, 4 mo. Forge--Strong Neutral No. 1 Mill, $21, 4 mo.; Cold Short, No. 1, $20.00, 4 mo. Car Wheel and Malleable--Hanging Rock Cold Blast, $40@42, 4 mo.; Hanging Rock Warm Blast, $30@35, 4 mo.; Southern Car Wheel $33@38, 4 mo.: Lake Superior, $33@35, 4 mo.; Lake Superior Malleable, $33@$35.

CINCINNATI.--(Reported by E. L. Harper & Co.)--During the past week we have had a very fair demand for car wheel and foundry grades. The mill hands are all on a strike here, and are demanding on an average 20 per cent over Pittsburgh prices, and at the present writing there is no prospect whatever of a compromise. Notwithstanding the strike, the market for Grey Forge iron is very firm as stocks of these grades are light. Foundry Irons--No. 1 Hanging Rock Charcoals, $26.00@$28.00; Strong Neutral Coke, $24.50@$25 00; American Scotch. $21.50@$22.50. Grey Forge--Neutral Coke, $21.00@$22.50; Cold Short, $20.00@21,00. Car Wheel and Malleable--Hanging Rock Cold Blast, $37.50@$40 00; Hanging Rock Warm Blast, $30.00@$32 00; Southern Car Wheel, $33.00@$37; Lake Superior, No. 1 and 2. $33.00@$35.00; Lake Superior, No. 3 and 6, $35.00@$37.

COPPER.

An estimate of the stocks of copper, taking into account late sales for shipment to Europe, cannot be regarded as in excess of the requirements of the country. Yet the market is far from buoyant. The Eastern copper combination continues till July, by which time the ruling price of the staple for the rest of the year will, as remarked by the Houghton Mining Gazette, be more certainly determined. Baltimore is nominally worth 18⅛@18¾ cents. Fire-box Sheets, 28 cents; sheathing, 26 cents; bolt copper, 28 cents. The following is an analysis of Lake Superior copper, given by Ch. Mosier in his paper on the copper mines of Lake Superior: Copper, 99.961; sulphur, 0,003; silver, 0,028; iron, 0.007; oxygen, 0,002; total 100,000.

TIN.

The market is very unsettled, and there has been no business in large lines, but jobbing lots are in good demand. We quote 19¾c. for all kinds except L. & F., which is 20¾c. The trade in tin plates is extremely quiet.

LEAD.

Market quiet and holders firm. Prices for this article are firm, ranging from 4.5 to 4.25 cents.

COAL.

Throughout the coal valleys miners are fully at work. As to local trade, no motive exists on the part of large consumers to purchase beyond immediate requirements. The following are rates of freight for coal: Cleveland to Buffalo, $1 per ton free; Cleveland to Ogdensburg, $2 per ton free; Lake Erie ports to Chicago, $1 per ton, free; to Escanaba, 90c. per ton, free; to Duluth, $1@1.10 per ton free; to Detroit, 40c. per ton, free.

LUMBER.

The largest trade so far of the season in the same length of time has been done the past week. A good interior demand has set in. The great amount of building going on will draw largely on our timber stocks. Prices are firmer here than at some other distributing points. Confidence is felt that the volume of trade will steadily increase, compensating for the somewhat unsatisfactory character of last year's trade.

EAST SAGINAW.--The Northwestern Lumber-

man reports: The shingle market has been inactive during the week. Prices are firm, and cash shingles readily command $2 and $3. The market range is as follows: River mills, XXX, $3.00@$3.10; river mills, clear butts, $2.00; country mills, XXX, $2.95@$3.00; country mills, clear butts, $1.90@$2.00.

GRAIN.

The grain markets are a trifle easier, and wheat is 1c. lower. The following are cash quotations on 'Change: Wheat—No. 1 red at $1 17; No. 2 red at $1.15; No. 3 red at $1.07; No. 2 mixed $1.08. Corn--High mixed 49c.; low mixed 48c.; ears, 50c. Oats--No. 1, 43c.; No, 2. 41c; white 44c. Rye--Held at $1.00. Barley--State—90@$1.00; Canada, $1.15@$1.25.

LUMBER.

PLANK.

2 INCH--MIXED WIDTHS.

A 1&2, $45, A3, $35, B. $28, C. $18, D. $14, E. $12.

1¼ AND 1½ INCH.

A 1&2, $44, A3, $35, B. $28, C. 18. D $14. E $12.

BOARDS.

1 INCH MIXED WIDTHS.

A 1&2, $42, A3, $32, B. $24, C. $16. D. $14, E. $12.

STOCK BOARDS.

12 INCHES WIDE.

A 1&2, $43, A3, $34, B. $26, C. $17, D. $15, E. $13.

STRIPS.

6 INCHES.

A 1&2, $40, A3 $33, B. $28, C. $18, D. $14, E. $12.

WORKED LUMBER

Flooring.
A3, $35, B. $30, C. $20.
Norway Flooring.
A3, $28; B $22; C $18.
Matched Drop Siding, 6 in.
A3, $36, B, $30, C, $20
Beaded Ceiling $2 higher than flooring
One half inch Bevel Siding.
A 1&2. $22, A3 $20, B $18
Ash Flooring, A1&2 $35.

BILL STUFF.

Small, 18 feet and under, $14.
20 feet and over, $5 less than length.

SHINGLES, LATH AND MILL WORK

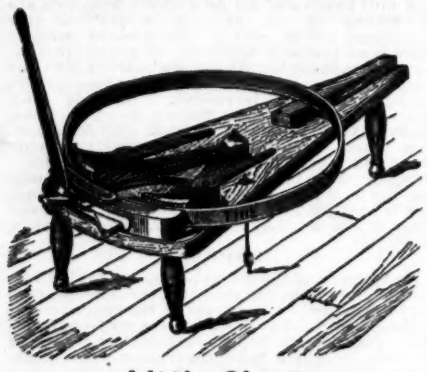
Shingles XXX 18 inches,	$3.75
Shingles Clear Butts	2.75
Lath	2 50
Surfacing one side $1.50; 2 sides	$2.00
Making, Flooring and Drop Sidings,	2.50

HARDWOODS.

OAK.—1st and 2d clear, 1 to 4 inch	$35 00
3d	30 00
1st common	25 00
2d common	28 00
BLACK WALNUT—Clear counter tops, 20-inch and up	150 00
1st and 2d inch	75 00
1st and 2d plank	80 00
Common	55 00
Select, 4x10 inch and over	68 00
ASH--1 to 2 inch, $35, over 2 inch	38 00
Wagon stock	40 00
HICKORY wagon stock 1 to 4 inch	50 00
MAPLE--Clear, 1 to 4 inch	35 00
BUTTERNUT--1st and 2d clear, 1-inch	55 00
CHERRY--1st and 2d clear, 1-inch	60 00
WHITEWOOD--Clear selected, w'd 1 to 4 in.	40 00
1st and 2d clear, 1 to 4 inch	35 00
Selected	30 00

Blacksmiths, Hardware

MEN. and AGENTS, should read this.



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FOR SALE.—Saw mill property with Cider mill attached, well located (lot 2 acres) in a town on the Valley Railroad. Mill fitted with a 25-horse power engine and boiler, in good repair and constant operation. Patronage large. The apple crop this year is large and the work of the cider mill will half pay purchase. Will sell whole or one-half interest, and in either case take half cash—balance on time. Price for whole $2,000. Address National Machinery Depot, corner Bond & Rockwell Streets, Cleveland O.

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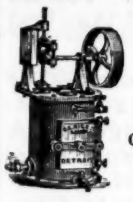
STATIONARY STEAM ENGINES, &C.

Boiler Feeder.



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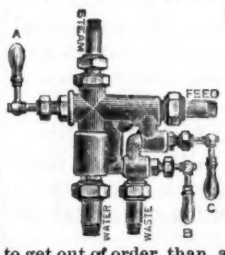

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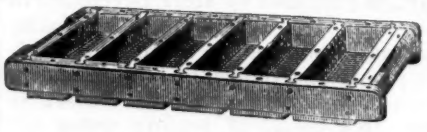

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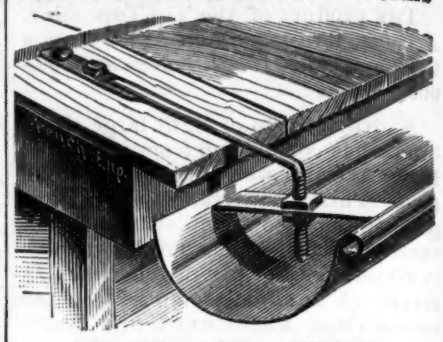

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TRAVELERS' REGISTER.

Lake Shore & Michigan Southern.

DEPARTURES.	a.m.	a.m.	p.m.	p.m.
Through Eastern Train,	*7 30	11 15	*2 55	10 35
Fast New York Express,	*2 00			
Conneaut Accom	....	....	4 50	....
Nottingham Accom	†9 00	....	*2 15	....
Elyria Accom	....	....	6 00	....
West, via Norwalk	7 00	....	3 30	*7 35
West, via Sandusky	3 05	7 00	*2 00	5 00
Port Clinton Accom	....	....	5 00	....
ARRIVALS.	**a.m.**	**a.m.**	**p.m.**	**p.m.**
Through from East	2 50	*6 35	1 25	*1 40
Through from East	....	....	....	*7 05
Conneaut Accom	8 40	....	....	....
Nottingham Accom	*10 05	....	*4 45	....
Elyria Accom	8 50	....	....	....
From West via Norwalk	....	11 00	2 25	10 10
Fast Express	*1 45	....	....	....
From West, via San'sky	*7 05	11 00	....	10 10
Port Clinton Accom	....	11 50	....	....

Cleveland, Columbus, Cincinnati & Indianapolis.

DEPARTURES.	a.m.	a.m.	p.m.	p.m.
Cincin. & Columbus, Ex	7 45	....	....	7 25
Clev Ind & Wheel'g Ex	....	7 15	....	....
Indianapolis & St. Louis	....	....	2 00	....
C.T.V.&W.& Columbus	....	....	4 00	....
ARRIVALS.	**a.m.**	**a.m.**	**p.m.**	**p.m.**
Ind'polis, Col. & Cin. Ex	7 10	....	2 45	10 25
S. Louis & New York Ex	....	....	2 35	....
Galion Accom	10 20	....	....	....

Cleveland, Tuscarawas Valley & Wheeling.

DEPARTURES.	a.m.	a.m.	p.m.	p.m.
Wheeling & Cleve'd Exp	7 15	.8.	....	....
Uhrichsville Accom	....	....	4 00	....
ARRIVALS.	**a.m.**	**a.m.**	**p.m.**	**p.m.**
Wheeling & Cleve'd Exp	....	....	....	8 20
Uhrichsville Accom	....	10 15	....	....

Cleveland & Pittsburgh.

DEPARTURES.	a.m.	a.m.	p.m.	p.m.
Pittsburgh & Wheeling,	8 50	....	2 30	....
Alliance Accom	....	....	4 55	....
Ravenna Accom	....	....	....	5 30
Night Express	....	....	....	11 30
ARRIVALS.	**a.m.**	**a.m.**	**p.m.**	**p.m.**
Pittsburgh & Wheeling,	....	....	3 22	7 25
Alliance Accom	10 10	....	....	....
Ravenna Accom	8 35	....	....	....
Night Express	6 30	....	....	....

New York, Pennsylvania & Ohio.

DEPARTURES.	a.m.	a.m.	p.m.	p.m.
Through Eastern train	*7 10	....	....	10 45
N.Y. & P.O. (Mahoning)	....	....	....	4 25
Pittsburgh Express	....	*7 10	2 45	4 25
ARRIVALS.	**a.m.**	**p.m.**	**p.m.**	**p.m.**
Through from East	6 50	....	....	*7 00
N.Y. & P.O. (Mahoning)	10 50	10 15	1 55	*6 50
Pittsburgh Express	10 50	....	1 55	*6 50

Valley Railway.

DEPARTURES.			
Express	8:20 a.m	4:15 p.m.	8.00 p.m
2d class Freight	10:30	....	....
3d class Coal—Akron	....	11:00	....
ARRIVALS.			
Express	10:10 a.m.	6:45 p.m.	1:25 p.m
2d class Freight	....	....	5:45 pm.

Detroit Boat.

Arrive.....6 00 a.m | Depart.....9 00 p.m.

* Sunday trains. † Sundays only.